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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Timothy A. Bekkedahl et al

Examiner: Shermanda L. Williams

Serial No.: 10/722,946

Art Unit: 1745

Filed: November 26, 2003

Docket No.: C-2370B

Title: Fuel Cell Having a Hydrophilic  
Substrate LayerDECLARATION UNDER 37 CFR 1.132Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Michael L. Perry declares that:

1. He resides at 131 Bluff Point Road, South Glastonbury, CT.
2. He has a Master's degree in Chemical Engineering and has been working in the field of fuel cells and related arts for over 12 years, and is currently engaged in that field on behalf of UTC Fuel Cells, LLC, South Windsor, CT.
3. He has examined relevant portions of the subject application, identified above, the parent application, SN 10/012,157, and the original application, SN 09/466,701, of which the parent was a continuation in part.

Original Application

4. The original application broadly describes and claims a pressure differential which results in a greater percentage of substrate pores containing reactant gas rather than water, on pages 5 and 7, and in claims 1, 22, 43 and 66-74.

5. The original application claims a pressure differential between 0.5 and 10 psi in claims 19, 40, 60 and 63.

6. The original application claims a pressure differential between 1 and 3 psi in claims 20, 41, 61 and 64.

7. The original application claims a pressure differential between 2 and 2.5 psi in claims 21, 42, 62 and 65.

8. The original application discloses on page 15 a range of pressure differential between 0.5 psi and 5.0 psi; it also discloses on page 34, with respect to Fig. 11, pressure differentials of between zero psi and 4.4 psi.

9. Fig. 11 of the original application shows fuel cell operation around 0.48 volts to around 0.52 volts for pressure differentials of about 0.2 psi, the low end of the presently claimed range.

10. Fig. 11 of the original application shows fuel cell operation around 0.59 volts at pressure differentials of about 1.7 psi, the upper end of the presently claimed range.

11. How to achieve any particular pressure differential is disclosed, in a manner to enable those skilled in the fuel cell art to make and use fuel cells having pressure differentials between 0.2 psi and 1.7 psi, at page 15, line 14 through page 16, line 17 of the original application.

#### **Parent Application**

12. The parent application broadly describes on pages 5 and 7 a pressure differential which results in a greater percentage of substrate pores containing reactant gas rather than water.

13. The parent application, as filed, describes on pages 15 and 34 and claims in claim 4 a pressure differential between zero and 2 psi, which is a broader range than the presently claimed range of 0.2 to 1.7 psi; the claimed range is necessarily within the broader range and would be recognized as such by those skilled in the fuel cell art.

14. Fig. 11 of the parent application shows fuel cell operation around 0.48 volts to around 0.52 volts for pressure differentials of about 0.2 psi, the low end of the presently claimed range.

15. Fig. 11 of the parent application shows fuel cell operation around 0.59 volts at pressure differentials of about 1.7 psi, the upper end of the presently claimed range; the claimed range is therefore disclosed, at least implicitly, in the parent application.

16. How to achieve any particular pressure differential is disclosed, in a manner to enable those skilled in the fuel cell art to make and use fuel cells having pressure differentials between 0.2 psi and 1.7 psi, at page 15, line 19 through page 16, line 8 of the parent application.

#### **Subject Application**

17. The subject application, as filed, broadly describes a pressure differential which results in a greater percentage of substrate pores containing reactant gas rather than water at page 5, line 29 through page 6, line 2 and at page 7, lines 21-25.

18. Fig. 11 of the subject application shows fuel cell operation around 0.48 volts to around 0.52 volts for pressure differentials of about 0.2 psi, the low end of the presently claimed range.


19. Fig. 11 of the subject application shows fuel cell operation around 0.59 volts at pressure differentials of about 1.7 psi, the upper end of the presently claimed range.

20. How to achieve any particular pressure differential is disclosed, in a manner to enable those skilled in the fuel cell art to make and use fuel cells having pressure differentials between 0.2 psi and 1.7 psi, at page 15, line 20 through page 16, line 17 of the subject application.

21. The subject application and its parent application adequately describe, and teach anyone skilled in the fuel cell art how to make and use, fuel

cells having a coolant pressure which is less than the reactant gas pressure, and how to adjust that pressure differential to be between 0.2 psi and 1.7 psi.

22. All statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

  
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Michael L. Perry

9/26/2006  
Date